

SEQUENCE LISTING

<110> David M. Knipe
Travis J. Taylor
Elizabeth McNamee

<120> Replication-Competent Virus Expressing A
Fusion Protein

<130> HU98-05

<140> 09/127,227

<141> 1998-07-31

<160> 5

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 4359

<212> DNA

<213> herpesvirus

<220>

<221> CDS

<222> (1)...(4359)

<400> 1

atg	gag	aca	aag	ccc	aag	acg	gca	acc	acc	atc	aag	gtc	ccc	ccc	ggg	48
Met	Glu	Thr	Lys	Pro	Lys	Thr	Ala	Thr	Thr	Ile	Lys	Val	Pro	Pro	Gly	
				5					10					15		
ccc	ctg	gga	tac	gtg	tac	gct	cgc	gcg	tgt	ccg	tcc	gaa	ggc	atc	gag	96
Pro	Leu	Gly	Tyr	Val	Tyr	Ala	Arg	Ala	Cys	Pro	Ser	Glu	Gly	Ile	Glu	
			20				25						30			
ctt	ctg	gcg	tta	ctg	tcg	gcg	cgc	agc	ggc	gat	gcc	gac	gtc	gcc	gtg	144
Leu	Leu	Ala	Leu	Leu	Ser	Ala	Arg	Ser	Gly	Asp	Ala	Asp	Val	Ala	Val	
		35					40					45				
gcg	ccc	ctg	gtc	gtg	ggc	ctg	acc	gtg	gag	agc	ggc	ttt	gag	gcc	aac	192
Ala	Pro	Leu	Val	Val	Gly	Leu	Thr	Val	Glu	Ser	Gly	Phe	Glu	Ala	Asn	
	50					55					60					
gta	gcc	gtg	gtc	gtg	ggc	tct	cgc	acg	acg	ggg	ctc	ggg	ggt	acc	gcg	240
Val	Ala	Val	Val	Val	Gly	Ser	Arg	Thr	Thr	Gly	Leu	Gly	Gly	Thr	Ala	
	65				70					75					80	
gtg	tcc	ctg	aaa	ctg	acg	cca	tcg	cac	tac	agc	tcg	tcc	gtg	tac	gtc	288
Val	Ser	Leu	Lys	Leu	Thr	Pro	Ser	His	Tyr	Ser	Ser	Ser	Val	Tyr	Val	
			85						90						95	

ttt	cac	ggc	ggc	cgg	cac	ctg	gac	ccc	agc	acc	cag	gcc	cca	aac	ctg	336
Phe	His	Gly	Gly	Arg	His	Leu	Asp	Pro	Ser	Thr	Gln	Ala	Pro	Asn	Leu	
		100						105					110			
acg	cga	ctc	tgc	gag	cgg	gca	cgc	cgc	cat	ttt	ggc	ttt	tgc	gac	tac	384
Thr	Arg	Leu	Cys	Glu	Arg	Ala	Arg	Arg	His	Phe	Gly	Phe	Ser	Asp	Tyr	
		115					120					125				
acc	ccc	cgg	ccc	ggc	gac	ctc	aaa	cac	gag	acg	acg	ggg	gag	gcg	ctg	432
Thr	Pro	Arg	Pro	Gly	Asp	Leu	Lys	His	Glu	Thr	Thr	Gly	Glu	Ala	Leu	
	130					135						140				
tgt	gag	cgc	ctc	ggc	ctg	gac	ccg	gac	cgc	gcc	ctc	ctg	tat	ctg	gtc	480
Cys	Glu	Arg	Leu	Gly	Leu	Asp	Pro	Asp	Arg	Ala	Leu	Leu	Tyr	Leu	Val	
145					150					155					160	
gtt	acc	gag	ggc	ttc	aag	gag	gcc	gtg	tgc	atc	aac	aac	acc	ttt	ctg	528
Val	Thr	Glu	Gly	Phe	Lys	Glu	Ala	Val	Cys	Ile	Asn	Asn	Thr	Phe	Leu	
				165					170					175		
cac	ctg	gga	ggc	tgc	gac	aag	gta	acc	ata	ggc	ggg	gcg	gag	gtg	cac	576
His	Leu	Gly	Gly	Ser	Asp	Lys	Val	Thr	Ile	Gly	Gly	Ala	Glu	Val	His	
			180					185					190			
cgc	ata	ccc	gtg	tat	ccg	ttg	cag	ctg	ttc	atg	ccg	gat	ttt	agc	cgg	624
Arg	Ile	Pro	Val	Tyr	Pro	Leu	Gln	Leu	Phe	Met	Pro	Asp	Phe	Ser	Arg	
		195					200					205				
gtc	atc	gcc	gag	ccg	ttc	aac	gcc	aac	cac	cga	tgc	atc	ggg	gag	aat	672
Val	Ile	Ala	Glu	Pro	Phe	Asn	Ala	Asn	His	Arg	Ser	Ile	Gly	Glu	Asn	
	210					215					220					
ttt	acc	tac	ccg	ctt	ccg	ttt	ttt	aac	cgc	ccc	ctc	aac	cgc	ctc	ctg	720
Phe	Thr	Tyr	Pro	Leu	Pro	Phe	Phe	Asn	Arg	Pro	Leu	Asn	Arg	Leu	Leu	
225					230					235					240	
ttc	gag	gcg	gtc	gtg	gga	ccc	gcc	gcc	gtg	gca	ctg	cga	tgc	cga	aac	768
Phe	Glu	Ala	Val	Val	Gly	Pro	Ala	Ala	Val	Ala	Leu	Arg	Cys	Arg	Asn	
				245					250					255		
gtg	gac	gcc	gtg	gcc	cgc	gcg	gcc	gcc	cac	ctg	gcg	ttt	gac	gaa	aac	816
Val	Asp	Ala	Val	Ala	Arg	Ala	Ala	Ala	His	Leu	Ala	Phe	Asp	Glu	Asn	
			260				265						270			
cac	gag	ggc	gcc	gcc	ctc	ccc	gcc	gac	att	acg	ttc	acg	gcc	ttc	gaa	864
His	Glu	Gly	Ala	Ala	Leu	Pro	Ala	Asp	Ile	Thr	Phe	Thr	Ala	Phe	Glu	
		275					280					285				
gcc	agc	cag	ggt	aag	acc	ccg	cgg	ggt	ggg	cgc	gac	ggc	ggc	ggc	aag	912
Ala	Ser	Gln	Gly	Lys	Thr	Pro	Arg	Gly	Gly	Arg	Asp	Gly	Gly	Gly	Lys	
	290					295					300					
ggc	ccg	gcg	ggc	ggg	ttc	gaa	cag	cgc	ctg	gcc	tcc	gtc	atg	gcc	gga	960

Gly 305	Pro	Ala	Gly	Gly	Phe 310	Glu	Gln	Arg	Leu	Ala 315	Ser	Val	Met	Ala	Gly 320	
gac Asp	gcc Ala	gcc Ala	ctg Leu	gcc Ala	ctc Leu	gag Glu	tct Ser	atc Ile	gtg Val	tcg Ser	atg Met	gcc Ala	gtc Val	ttc Phe	gac Asp	1008
gag Glu	ccg Pro	ccc Pro	acc Thr	gac Asp	atc Ile	tcc Ser	gcg Ala	tgg Trp	ccg Pro	ctg Leu	tgc Cys	gag Glu	ggc Gly	cag Gln	gac Asp	1056
acg Thr	gcc Ala	gcg Ala	gcc Ala	cgc Arg	gcc Ala	aac Asn	gcc Ala	gtc Val	ggg Gly	gcg Ala	tac Tyr	ctg Leu	gcg Ala	cgc Arg	gcc Ala	1104
gcg Ala	gga Gly	ctc Leu	gtg Val	ggg Gly	gcc Ala	atg Met	gta Val	ttt Phe	agc Ser	acc Thr	aac Asn	tcg Ser	gcc Ala	ctc Leu	cat His	1152
ctc Leu	acc Thr	gag Glu	gtg Val	gac Asp	gac Asp	gcc Ala	ggc Gly	ccg Pro	gcg Ala	gac Asp	cca Pro	aag Lys	gac Asp	cac His	agc Ser	1200
aaa Lys	ccc Pro	tcc Ser	ttt Phe	tac Tyr	cgc Arg	ttc Phe	ttc Phe	ctc Leu	gtg Val	ccc Pro	ggg Gly	acc Thr	cac His	gtg Val	gcg Ala	1248
gcc Ala	aac Asn	cca Pro	cag Gln	gtg Val	gac Asp	cgc Arg	gag Glu	gga Gly	cac His	gtg Val	gtg Val	ccc Pro	ggg Gly	ttc Phe	gag Glu	1296
ggt Gly	cgg Arg	ccc Pro	acc Thr	gcg Ala	ccc Pro	ctc Leu	gtc Val	ggc Gly	gga Gly	acc Thr	cag Gln	gaa Glu	ttt Phe	gcc Ala	ggc Gly	1344
gag Glu	cac His	ctg Leu	gcc Ala	atg Met	ctg Leu	tgt Cys	ggg Gly	ttt Phe	tcc Ser	ccg Pro	gcg Ala	ctg Leu	ctg Leu	gcc Ala	aag Lys	1392
atg Met	ctg Leu	ttt Phe	tac Tyr	ctg Leu	gag Glu	cgc Arg	tgc Cys	gac Asp	ggc Gly	ggc Gly	gtg Val	atc Ile	gtc Val	ggg Gly	cgc Arg	1440
cag Gln	gag Glu	atg Met	gac Asp	gtg Val	ttt Phe	cga Arg	tac Tyr	gtc Val	gcg Ala	gac Asp	tcc Ser	aac Asn	cag Gln	acc Thr	gac Asp	1488
gtg Val	ccc Pro	tgc Cys	aac Asn	ctg Leu	tgc Cys	acc Thr	ttc Phe	gac Asp	acg Thr	cgc Arg	cac His	gcc Ala	tgc Cys	gta Val	cac His	1536
acg Thr	acg Thr	ctc Leu	atg Met	cgc Arg	ctc Leu	cgg Arg	gcg Ala	cgc Arg	cat His	ccc Pro	aag Lys	ttc Phe	gcc Ala	agc Ser	gcc Ala	1584

515

520

525

gcc Ala 530	cgc Arg	gga Gly	gcc Ala	atc Ile	ggc Gly	gtc Val 535	ttc Phe	ggg Gly	acc Thr	atg Met	aac Asn 540	agc Ser	atg Met	tac Tyr	agc Ser	1632
gac Asp 545	tgc Cys	gac Asp	gtg Val	ctg Leu	gga Gly 550	aac Asn	tac Tyr	gcc Ala	gcc Ala	ttc Phe 555	tcg Ser	gcc Ala	ctg Leu	aag Lys	cgc Arg 560	1680
gcg Ala	gac Asp	gga Gly	tcc Ser	gag Glu 565	acc Thr	gcc Ala	cgg Arg	acc Thr	atc Ile 570	atg Met	cag Gln	gag Glu	acg Thr	tac Tyr 575	cgc Arg	1728
gcg Ala	gcg Ala	acc Thr	gag Glu 580	cgc Arg	gtc Val	atg Met	gcc Ala	gaa Glu 585	ctc Leu	gag Glu	acc Thr	ctg Leu	cag Gln	tac Tyr	gtg Val	1776
gac Asp	cag Gln 595	gcg Ala	gtc Val	ccc Pro	acg Thr	gcc Ala	atg Met 600	ggg Gly	cgg Arg	ctg Leu	gag Glu	acc Thr 605	atc Ile	atc Ile	acc Thr	1824
aac Asn 610	cgc Arg	gag Glu	gcc Ala	ctg Leu	cat His	acg Thr 615	gtg Val	gtg Val	aac Asn	aac Asn	gtc Val 620	agg Arg	cag Gln	gtc Val	gtg Val	1872
gac Asp 625	cgc Arg	gag Glu	gtg Val	gag Glu	cag Gln 630	ctg Leu	atg Met	cgc Arg	aac Asn	ctg Leu 635	gtg Val	gag Glu	ggg Gly	agg Arg	aac Asn 640	1920
ttc Phe	aag Lys	ttt Phe	cgc Arg	gac Asp 645	ggt Gly	ctg Leu	ggc Gly	gag Glu	gcc Ala	aac Asn 650	cac His	gcc Ala	atg Met	tcc Ser 655	ctg Leu	1968
acg Thr	ctg Leu	gac Asp	ccg Pro 660	tac Tyr	gcg Ala	tgc Cys	ggg Gly	cca Pro	tgc Cys	ccc Pro	ctg Leu	ctt Leu	cag Gln 670	ctt Leu	ctc Leu	2016
ggg Gly	cgg Arg	cga Arg	tcc Ser	aac Asn	ctc Leu	gcc Ala	gtg Val 680	tat Tyr	cag Gln	gac Asp	ctg Leu	gcc Ala	ctg Leu	agc Ser	cag Gln	2064
tgc Cys 690	cac His	ggg Gly	gtg Val	ttc Phe	gcc Ala	ggg Gly 695	cag Gln	tcg Ser	gtc Val	gag Glu	ggg Gly 700	cgc Arg	aac Asn	ttt Phe	cgc Arg	2112
aat Asn 705	caa Gln	ttc Phe	caa Gln	ccg Pro	gtg Val 710	ctg Leu	cgg Arg	cgg Arg	cgc Arg	gtg Val 715	atg Met	gac Asp	atg Met	ttt Phe	aac Asn 720	2160
aac Asn	ggg Gly	ttt Phe	ctg Leu	tcg Ser	gcc Ala	aaa Lys	acg Thr	ctg Leu	acg Thr	gtc Val 730	gcg Ala	ctc Leu	tcg Ser	gag Glu 735	ggg Gly	2208

gcg gct atc tgc gcc ccc agc cta acg gcc ggc cag acg gcc ccc gcc Ala Ala Ile Cys Ala Pro Ser Leu Thr Ala Gly Gln Thr Ala Pro Ala 740 745 750	2256
gag agc agc ttc gag ggc gac gtt gcc cgc gtg acc ctg ggg ttt ccc Glu Ser Ser Phe Glu Gly Asp Val Ala Arg Val Thr Leu Gly Phe Pro 755 760 765	2304
aag gag ctg cgc gtc aag agc cgc gtg ttg ttc gcg ggc gcg agc gcc Lys Glu Leu Arg Val Lys Ser Arg Val Leu Phe Ala Gly Ala Ser Ala 770 775 780	2352
aac gcg tcc gag gcc gcc aag gcg cgg gtc gcc agc ctc cag agc gcc Asn Ala Ser Glu Ala Ala Lys Ala Arg Val Ala Ser Leu Gln Ser Ala 785 790 795 800	2400
tac cag aag ccc gac aag cgc gtg gac atc ctc ctc gga ccg ctg ggc Tyr Gln Lys Pro Asp Lys Arg Val Asp Ile Leu Leu Gly Pro Leu Gly 805 810 815	2448
ttc ctg ctg aag cag ttc cac gcg gcc atc ttc ccc aac ggc aag ccc Phe Leu Leu Lys Gln Phe His Ala Ala Ile Phe Pro Asn Gly Lys Pro 820 825 830	2496
ccg ggg tcc aac cag ccg aac ccg cag tgg ttc tgg acg gcc ctc caa Pro Gly Ser Asn Gln Pro Asn Pro Gln Trp Phe Trp Thr Ala Leu Gln 835 840 845	2544
cgc aac cag ctt ccc gcc ccg ctc ctg tcg cgc gag gac atc gag acc Arg Asn Gln Leu Pro Ala Arg Leu Leu Ser Arg Glu Asp Ile Glu Thr 850 855 860	2592
atc gcg ttc att aaa aag ttt tcc ctg gac tac ggc gcg ata aac ttt Ile Ala Phe Ile Lys Lys Phe Ser Leu Asp Tyr Gly Ala Ile Asn Phe 865 870 875 880	2640
att aac ctg gcc ccc aac aac gtg agc gag ctg gcg atg tac tac atg Ile Asn Leu Ala Pro Asn Asn Val Ser Glu Leu Ala Met Tyr Tyr Met 885 890 895	2688
gca aac cag att ctg ccg tac tgc gat cac tcg aca tac ttc atc aac Ala Asn Gln Ile Leu Arg Tyr Cys Asp His Ser Thr Tyr Phe Ile Asn 900 905 910	2736
acc ctc acg gcc atc atc gcg ggg tcc cgc cgt ccc ccc agc gtg cag Thr Leu Thr Ala Ile Ile Ala Gly Ser Arg Arg Pro Pro Ser Val Gln 915 920 925	2784
gcg gcg gcc gcg tgg tcc gcg cag ggc ggg gcg ggc ctg gag gcc ggg Ala Ala Ala Ala Trp Ser Ala Gln Gly Gly Ala Gly Leu Glu Ala Gly 930 935 940	2832

gcc cgc gcg ctg atg gac gcc gtg gac gcg cat ccg ggc gcg tgg acg Ala Arg Ala Leu Met Asp Ala Val Asp Ala His Pro Gly Ala Trp Thr 945 950 955 960	2880
tcc atg ttc gcc agc tgc aac ctg ctg cgg ccc gtc atg gcg gcg cgc Ser Met Phe Ala Ser Cys Asn Leu Leu Arg Pro Val Met Ala Ala Arg 965 970 975	2928
ccc atg gtc gtg ttg ggg ttg agc atc agc aaa tac tac ggc atg gcc Pro Met Val Val Leu Gly Leu Ser Ile Ser Lys Tyr Tyr Gly Met Ala 980 985 990	2976
ggc aac gac cgt gtg ttt cag gcc ggg aac tgg gcc agc ctg atg ggc Gly Asn Asp Arg Val Phe Gln Ala Gly Asn Trp Ala Ser Leu Met Gly 995 1000 1005	3024
ggc aaa aac gcg tgc ccg ctc ctt att ttt gac cgc acc cgc aag ttc Gly Lys Asn Ala Cys Pro Leu Leu Ile Phe Asp Arg Thr Arg Lys Phe 1010 1015 1020	3072
gtc ctg gcc tgt ccc cgg gcc ggg ttt gtg tgc gcg gcc tcg aac ctc Val Leu Ala Cys Pro Arg Ala Gly Phe Val Cys Ala Ala Ser Asn Leu 1025 1030 1035 1040	3120
ggc ggc gga gcg cac gaa agc tcg ctg tgc gag cag ctc cgg ggc att Gly Gly Gly Ala His Glu Ser Ser Leu Cys Glu Gln Leu Arg Gly Ile 1045 1050 1055	3168
atc tcc gag ggc ggg gcg gcc gtc gcc agt agc gtg ttc gtg gcg acc Ile Ser Glu Gly Gly Ala Ala Val Ala Ser Ser Val Phe Val Ala Thr 1060 1065 1070	3216
gtg aaa agc ctg ggg ccc cgc acc cag cag ctg cag atc gag gac tgg Val Lys Ser Leu Gly Pro Arg Thr Gln Gln Leu Gln Ile Glu Asp Trp 1075 1080 1085	3264
ctg gcg ctc ctg gag gac gag tac cta agc gag gag atg atg gag ctg Leu Ala Leu Leu Glu Asp Glu Tyr Leu Ser Glu Glu Met Met Glu Leu 1090 1095 1100	3312
acc gcg cgt gcc ctg gag cgc ggc aac ggc gag tgg tcg acg gac gcg Thr Ala Arg Ala Leu Glu Arg Gly Asn Gly Glu Trp Ser Thr Asp Ala 1105 1110 1115 1120	3360
gcc ctg gag gtg gcg cac gag gcc gag gcc cta gtc agc caa ctc ggc Ala Leu Glu Val Ala His Glu Ala Glu Ala Leu Val Ser Gln Leu Gly 1125 1130 1135	3408
aac gcc ggg gag gtg ttt aac ttt ggg gat ttt ggc tgc gag gac gac Asn Ala Gly Glu Val Phe Asn Phe Gly Asp Phe Gly Cys Glu Asp Asp 1140 1145 1150	3456
aac gcg acg ccg ttc ggc ggc ccg ggg gcc ccg gga ccg gca ttt gcc	3504

Asn	Ala	Thr	Pro	Phe	Gly	Gly	Pro	Gly	Ala	Pro	Gly	Pro	Ala	Phe	Ala		
	1155						1160					1165					
ggc	cgc	aaa	cgg	gcg	ttc	cac	ggg	gat	gac	ccg	ttt	ggg	gag	ggg	ccc		3552
Gly	Arg	Lys	Arg	Ala	Phe	His	Gly	Asp	Asp	Pro	Phe	Gly	Glu	Gly	Pro		
	1170					1175					1180						
ccc	gac	aaa	aag	gga	gac	ctg	acg	ttg	gat	atg	ctg	aga	ggg	ggt	ggg		3600
Pro	Asp	Lys	Lys	Gly	Asp	Leu	Thr	Leu	Asp	Met	Leu	Arg	Gly	Val	Gly		
	1185				1190					1195					1200		
ggg	tgg	ggg	aac	cta	gag	tcg	acc	cgg	gcg	gcc	gcc	gcc	acc	atg	agc		3648
Gly	Trp	Gly	Asn	Leu	Glu	Ser	Thr	Arg	Ala	Ala	Ala	Ala	Thr	Met	Ser		
				1205					1210					1215			
aag	ggc	gag	gaa	ctg	ttc	act	ggc	gtg	gtc	cca	att	ctc	gtg	gaa	ctg		3696
Lys	Gly	Glu	Glu	Leu	Phe	Thr	Gly	Val	Val	Pro	Ile	Leu	Val	Glu	Leu		
			1220					1225					1230				
gat	ggc	gat	gtg	aat	ggg	cac	aaa	ttt	tct	gtc	agc	gga	gag	ggt	gaa		3744
Asp	Gly	Asp	Val	Asn	Gly	His	Lys	Phe	Ser	Val	Ser	Gly	Glu	Gly	Glu		
		1235					1240					1245					
ggc	gat	gcc	aca	tac	gga	aag	ctc	acc	ctg	aaa	ttc	atc	tgc	acc	act		3792
Gly	Asp	Ala	Thr	Tyr	Gly	Lys	Leu	Thr	Leu	Lys	Phe	Ile	Cys	Thr	Thr		
	1250					1255					1260						
gga	aag	ctc	cct	gtg	cca	tgg	cca	aca	ctg	gtc	act	acc	ttc	acc	tat		3840
Gly	Lys	Leu	Pro	Val	Pro	Trp	Pro	Thr	Leu	Val	Thr	Thr	Phe	Thr	Tyr		
	1265				1270					1275					1280		
ggc	gtg	cag	tgc	ttt	tcc	aga	tac	cca	gac	cat	atg	aag	cag	cat	gac		3888
Gly	Val	Gln	Cys	Phe	Ser	Arg	Tyr	Pro	Asp	His	Met	Lys	Gln	His	Asp		
				1285					1290					1295			
ttt	ttc	aag	agc	gcc	atg	ccc	gag	ggc	tat	gtg	cag	gag	aga	acc	atc		3936
Phe	Phe	Lys	Ser	Ala	Met	Pro	Glu	Gly	Tyr	Val	Gln	Glu	Arg	Thr	Ile		
			1300					1305					1310				
ttt	ttc	aaa	gat	gac	ggg	aac	tac	aag	acc	cgc	gct	gaa	gtc	aag	ttc		3984
Phe	Phe	Lys	Asp	Asp	Gly	Asn	Tyr	Lys	Thr	Arg	Ala	Glu	Val	Lys	Phe		
		1315					1320					1325					
gaa	ggt	gac	acc	ctg	gtg	aat	aga	atc	gag	ttg	aag	ggc	att	gac	ttt		4032
Glu	Gly	Asp	Thr	Leu	Val	Asn	Arg	Ile	Glu	Leu	Lys	Gly	Ile	Asp	Phe		
	1330					1335					1340						
aag	gaa	gat	gga	aac	att	ctc	ggc	cac	aag	ctg	gaa	tac	aac	tat	aac		4080
Lys	Glu	Asp	Gly	Asn	Ile	Leu	Gly	His	Lys	Leu	Glu	Tyr	Asn	Tyr	Asn		
	1345				1350					1355					1360		
tcc	cac	aat	gtg	tac	atc	atg	gcc	gac	aag	caa	aag	aat	ggc	atc	aag		4128
Ser	His	Asn	Val	Tyr	Ile	Met	Ala	Asp	Lys	Gln	Lys	Asn	Gly	Ile	Lys		

1365

1370

1375

gtc aac ttc aag atc aga cac aac att gag gat gga tcc gtg cag ctg 4176
 Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu
 1380 1385 1390

gcc gac cat tat caa cag aac act cca atc ggc gac ggc cct gtg ctc 4224
 Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu
 1395 1400 1405

ctc cca gac aac cat tac ctg tcc acc cag tct gcc ctg tct aaa gat 4272
 Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser Lys Asp
 1410 1415 1420

ccc aac gaa aag aga gac cac atg gtc ctg ctg gag ttt gtg acc gct 4320
 Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr Ala
 1425 1430 1435 1440

gct ggg atc aca cat ggc atg gac gag ctg tac aag tga 4359
 Ala Gly Ile Thr His Gly Met Asp Glu Leu Tyr Lys *
 1445 1450

<210> 2
 <211> 1452
 <212> PRT
 <213> herpesvirus

<400> 2

Met Glu Thr Lys Pro Lys Thr Ala Thr Thr Ile Lys Val Pro Pro Gly
 1 5 10 15
 Pro Leu Gly Tyr Val Tyr Ala Arg Ala Cys Pro Ser Glu Gly Ile Glu
 20 25 30
 Leu Leu Ala Leu Leu Ser Ala Arg Ser Gly Asp Ala Asp Val Ala Val
 35 40 45
 Ala Pro Leu Val Val Gly Leu Thr Val Glu Ser Gly Phe Glu Ala Asn
 50 55 60
 Val Ala Val Val Val Gly Ser Arg Thr Thr Gly Leu Gly Gly Thr Ala
 65 70 75 80
 Val Ser Leu Lys Leu Thr Pro Ser His Tyr Ser Ser Ser Val Tyr Val
 85 90 95
 Phe His Gly Gly Arg His Leu Asp Pro Ser Thr Gln Ala Pro Asn Leu
 100 105 110
 Thr Arg Leu Cys Glu Arg Ala Arg Arg His Phe Gly Phe Ser Asp Tyr
 115 120 125
 Thr Pro Arg Pro Gly Asp Leu Lys His Glu Thr Thr Gly Glu Ala Leu
 130 135 140
 Cys Glu Arg Leu Gly Leu Asp Pro Asp Arg Ala Leu Leu Tyr Leu Val
 145 150 155 160
 Val Thr Glu Gly Phe Lys Glu Ala Val Cys Ile Asn Asn Thr Phe Leu
 165 170 175
 His Leu Gly Gly Ser Asp Lys Val Thr Ile Gly Gly Ala Glu Val His
 180 185 190

Arg	Ile	Pro	Val	Tyr	Pro	Leu	Gln	Leu	Phe	Met	Pro	Asp	Phe	Ser	Arg
		195					200					205			
Val	Ile	Ala	Glu	Pro	Phe	Asn	Ala	Asn	His	Arg	Ser	Ile	Gly	Glu	Asn
	210					215					220				
Phe	Thr	Tyr	Pro	Leu	Pro	Phe	Phe	Asn	Arg	Pro	Leu	Asn	Arg	Leu	Leu
225					230					235					240
Phe	Glu	Ala	Val	Val	Gly	Pro	Ala	Ala	Val	Ala	Leu	Arg	Cys	Arg	Asn
			245						250					255	
Val	Asp	Ala	Val	Ala	Arg	Ala	Ala	Ala	His	Leu	Ala	Phe	Asp	Glu	Asn
		260					265						270		
His	Glu	Gly	Ala	Ala	Leu	Pro	Ala	Asp	Ile	Thr	Phe	Thr	Ala	Phe	Glu
	275						280					285			
Ala	Ser	Gln	Gly	Lys	Thr	Pro	Arg	Gly	Gly	Arg	Asp	Gly	Gly	Gly	Lys
	290					295					300				
Gly	Pro	Ala	Gly	Gly	Phe	Glu	Gln	Arg	Leu	Ala	Ser	Val	Met	Ala	Gly
305					310					315					320
Asp	Ala	Ala	Leu	Ala	Leu	Glu	Ser	Ile	Val	Ser	Met	Ala	Val	Phe	Asp
			325						330					335	
Glu	Pro	Pro	Thr	Asp	Ile	Ser	Ala	Trp	Pro	Leu	Cys	Glu	Gly	Gln	Asp
			340					345					350		
Thr	Ala	Ala	Ala	Arg	Ala	Asn	Ala	Val	Gly	Ala	Tyr	Leu	Ala	Arg	Ala
	355						360					365			
Ala	Gly	Leu	Val	Gly	Ala	Met	Val	Phe	Ser	Thr	Asn	Ser	Ala	Leu	His
	370					375					380				
Leu	Thr	Glu	Val	Asp	Asp	Ala	Gly	Pro	Ala	Asp	Pro	Lys	Asp	His	Ser
385					390					395					400
Lys	Pro	Ser	Phe	Tyr	Arg	Phe	Phe	Leu	Val	Pro	Gly	Thr	His	Val	Ala
			405						410					415	
Ala	Asn	Pro	Gln	Val	Asp	Arg	Glu	Gly	His	Val	Val	Pro	Gly	Phe	Glu
			420					425					430		
Gly	Arg	Pro	Thr	Ala	Pro	Leu	Val	Gly	Gly	Thr	Gln	Glu	Phe	Ala	Gly
		435					440					445			
Glu	His	Leu	Ala	Met	Leu	Cys	Gly	Phe	Ser	Pro	Ala	Leu	Leu	Ala	Lys
	450					455					460				
Met	Leu	Phe	Tyr	Leu	Glu	Arg	Cys	Asp	Gly	Gly	Val	Ile	Val	Gly	Arg
465					470					475					480
Gln	Glu	Met	Asp	Val	Phe	Arg	Tyr	Val	Ala	Asp	Ser	Asn	Gln	Thr	Asp
			485						490					495	
Val	Pro	Cys	Asn	Leu	Cys	Thr	Phe	Asp	Thr	Arg	His	Ala	Cys	Val	His
			500					505					510		
Thr	Thr	Leu	Met	Arg	Leu	Arg	Ala	Arg	His	Pro	Lys	Phe	Ala	Ser	Ala
		515					520					525			
Ala	Arg	Gly	Ala	Ile	Gly	Val	Phe	Gly	Thr	Met	Asn	Ser	Met	Tyr	Ser
	530					535					540				
Asp	Cys	Asp	Val	Leu	Gly	Asn	Tyr	Ala	Ala	Phe	Ser	Ala	Leu	Lys	Arg
545					550					555					560
Ala	Asp	Gly	Ser	Glu	Thr	Ala	Arg	Thr	Ile	Met	Gln	Glu	Thr	Tyr	Arg
			565						570					575	
Ala	Ala	Thr	Glu	Arg	Val	Met	Ala	Glu	Leu	Glu	Thr	Leu	Gln	Tyr	Val
			580					585					590		
Asp	Gln	Ala	Val	Pro	Thr	Ala	Met	Gly	Arg	Leu	Glu	Thr	Ile	Ile	Thr
	595						600					605			
Asn	Arg	Glu	Ala	Leu	His	Thr	Val	Val	Asn	Asn	Val	Arg	Gln	Val	Val

610	615	620																	
Asp	Arg	Glu	Val	Glu	Gln	Leu	Met	Arg	Asn	Leu	Val	Glu	Gly	Arg	Asn				
625					630					635					640				
Phe	Lys	Phe	Arg	Asp	Gly	Leu	Gly	Glu	Ala	Asn	His	Ala	Met	Ser	Leu				
				645					650						655				
Thr	Leu	Asp	Pro	Tyr	Ala	Cys	Gly	Pro	Cys	Pro	Leu	Leu	Gln	Leu	Leu				
			660					665					670						
Gly	Arg	Arg	Ser	Asn	Leu	Ala	Val	Tyr	Gln	Asp	Leu	Ala	Leu	Ser	Gln				
		675					680					685							
Cys	His	Gly	Val	Phe	Ala	Gly	Gln	Ser	Val	Glu	Gly	Arg	Asn	Phe	Arg				
	690					695					700								
Asn	Gln	Phe	Gln	Pro	Val	Leu	Arg	Arg	Arg	Val	Met	Asp	Met	Phe	Asn				
705					710					715					720				
Asn	Gly	Phe	Leu	Ser	Ala	Lys	Thr	Leu	Thr	Val	Ala	Leu	Ser	Glu	Gly				
				725					730						735				
Ala	Ala	Ile	Cys	Ala	Pro	Ser	Leu	Thr	Ala	Gly	Gln	Thr	Ala	Pro	Ala				
			740					745					750						
Glu	Ser	Ser	Phe	Glu	Gly	Asp	Val	Ala	Arg	Val	Thr	Leu	Gly	Phe	Pro				
		755					760					765							
Lys	Glu	Leu	Arg	Val	Lys	Ser	Arg	Val	Leu	Phe	Ala	Gly	Ala	Ser	Ala				
	770					775					780								
Asn	Ala	Ser	Glu	Ala	Ala	Lys	Ala	Arg	Val	Ala	Ser	Leu	Gln	Ser	Ala				
785					790					795					800				
Tyr	Gln	Lys	Pro	Asp	Lys	Arg	Val	Asp	Ile	Leu	Leu	Gly	Pro	Leu	Gly				
				805					810						815				
Phe	Leu	Leu	Lys	Gln	Phe	His	Ala	Ala	Ile	Phe	Pro	Asn	Gly	Lys	Pro				
			820					825					830						
Pro	Gly	Ser	Asn	Gln	Pro	Asn	Pro	Gln	Trp	Phe	Trp	Thr	Ala	Leu	Gln				
		835					840					845							
Arg	Asn	Gln	Leu	Pro	Ala	Arg	Leu	Leu	Ser	Arg	Glu	Asp	Ile	Glu	Thr				
	850					855					860								
Ile	Ala	Phe	Ile	Lys	Lys	Phe	Ser	Leu	Asp	Tyr	Gly	Ala	Ile	Asn	Phe				
865					870					875					880				
Ile	Asn	Leu	Ala	Pro	Asn	Asn	Val	Ser	Glu	Leu	Ala	Met	Tyr	Tyr	Met				
				885					890					895					
Ala	Asn	Gln	Ile	Leu	Arg	Tyr	Cys	Asp	His	Ser	Thr	Tyr	Phe	Ile	Asn				
		900						905					910						
Thr	Leu	Thr	Ala	Ile	Ile	Ala	Gly	Ser	Arg	Arg	Pro	Pro	Ser	Val	Gln				
		915					920					925							
Ala	Ala	Ala	Ala	Trp	Ser	Ala	Gln	Gly	Gly	Ala	Gly	Leu	Glu	Ala	Gly				
	930					935					940								
Ala	Arg	Ala	Leu	Met	Asp	Ala	Val	Asp	Ala	His	Pro	Gly	Ala	Trp	Thr				
945					950					955					960				
Ser	Met	Phe	Ala	Ser	Cys	Asn	Leu	Leu	Arg	Pro	Val	Met	Ala	Ala	Arg				
				965					970						975				
Pro	Met	Val	Val	Leu	Gly	Leu	Ser	Ile	Ser	Lys	Tyr	Tyr	Gly	Met	Ala				
			980					985					990						
Gly	Asn	Asp	Arg	Val	Phe	Gln	Ala	Gly	Asn	Trp	Ala	Ser	Leu	Met	Gly				
		995					1000					1005							
Gly	Lys	Asn	Ala	Cys	Pro	Leu	Leu	Ile	Phe	Asp	Arg	Thr	Arg	Lys	Phe				
	1010					1015				1020									
Val	Leu	Ala	Cys	Pro	Arg	Ala	Gly	Phe	Val	Cys	Ala	Ala	Ser	Asn	Leu				
1025					1030					1035					1040				

Gly	Gly	Gly	Ala	His	Glu	Ser	Ser	Leu	Cys	Glu	Gln	Leu	Arg	Gly	Ile
				1045					1050					1055	
Ile	Ser	Glu	Gly	Gly	Ala	Ala	Val	Ala	Ser	Ser	Val	Phe	Val	Ala	Thr
			1060					1065					1070		
Val	Lys	Ser	Leu	Gly	Pro	Arg	Thr	Gln	Gln	Leu	Gln	Ile	Glu	Asp	Trp
		1075					1080					1085			
Leu	Ala	Leu	Leu	Glu	Asp	Glu	Tyr	Leu	Ser	Glu	Glu	Met	Met	Glu	Leu
	1090					1095					1100				
Thr	Ala	Arg	Ala	Leu	Glu	Arg	Gly	Asn	Gly	Glu	Trp	Ser	Thr	Asp	Ala
1105				1110						1115					1120
Ala	Leu	Glu	Val	Ala	His	Glu	Ala	Glu	Ala	Leu	Val	Ser	Gln	Leu	Gly
			1125						1130					1135	
Asn	Ala	Gly	Glu	Val	Phe	Asn	Phe	Gly	Asp	Phe	Gly	Cys	Glu	Asp	Asp
		1140						1145				1150			
Asn	Ala	Thr	Pro	Phe	Gly	Gly	Pro	Gly	Ala	Pro	Gly	Pro	Ala	Phe	Ala
		1155					1160					1165			
Gly	Arg	Lys	Arg	Ala	Phe	His	Gly	Asp	Asp	Pro	Phe	Gly	Glu	Gly	Pro
	1170					1175					1180				
Pro	Asp	Lys	Lys	Gly	Asp	Leu	Thr	Leu	Asp	Met	Leu	Arg	Gly	Val	Gly
1185				1190						1195					1200
Gly	Trp	Gly	Asn	Leu	Glu	Ser	Thr	Arg	Ala	Ala	Ala	Ala	Thr	Met	Ser
			1205						1210					1215	
Lys	Gly	Glu	Glu	Leu	Phe	Thr	Gly	Val	Val	Pro	Ile	Leu	Val	Glu	Leu
		1220						1225				1230			
Asp	Gly	Asp	Val	Asn	Gly	His	Lys	Phe	Ser	Val	Ser	Gly	Glu	Gly	Glu
		1235					1240					1245			
Gly	Asp	Ala	Thr	Tyr	Gly	Lys	Leu	Thr	Leu	Lys	Phe	Ile	Cys	Thr	Thr
	1250					1255					1260				
Gly	Lys	Leu	Pro	Val	Pro	Trp	Pro	Thr	Leu	Val	Thr	Thr	Phe	Thr	Tyr
1265				1270						1275					1280
Gly	Val	Gln	Cys	Phe	Ser	Arg	Tyr	Pro	Asp	His	Met	Lys	Gln	His	Asp
			1285						1290					1295	
Phe	Phe	Lys	Ser	Ala	Met	Pro	Glu	Gly	Tyr	Val	Gln	Glu	Arg	Thr	Ile
		1300						1305				1310			
Phe	Phe	Lys	Asp	Asp	Gly	Asn	Tyr	Lys	Thr	Arg	Ala	Glu	Val	Lys	Phe
		1315					1320					1325			
Glu	Gly	Asp	Thr	Leu	Val	Asn	Arg	Ile	Glu	Leu	Lys	Gly	Ile	Asp	Phe
	1330					1335					1340				
Lys	Glu	Asp	Gly	Asn	Ile	Leu	Gly	His	Lys	Leu	Glu	Tyr	Asn	Tyr	Asn
1345				1350						1355					1360
Ser	His	Asn	Val	Tyr	Ile	Met	Ala	Asp	Lys	Gln	Lys	Asn	Gly	Ile	Lys
			1365						1370						

<210> 3
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a sense molecule used to modify the stop codon

<400> 3
 caacccctct cagcatatcc aacg

24

<210> 4
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> an anti-sense molecule used to modify the stop
 codon

<400> 4
 cgttgatat gctgagaggg gttg

24

<210> 5
 <211> 12
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide linker

<400> 5
 ggaagatctt cc

12